

## Tender document

Department of Civil Engineering  
Indian Institute of Technology Kanpur  
Kanpur (UP), Pin- 208016, India

**Enquiry No.:** CE/TE/23-24/02/RV

**Opening date:** 01/08/2023

**Closing date:** 22/08/2023

Quotations (*both technical and financial*) are invited for Rotational viscometer **satisfying following technical requirements (Quantity - 01)**. The detailed Specification of the Rotational viscometer is described below.

### Technical Specification for Rotational Viscometer

- ❖ Rotational viscometer (with typical threaded version) should be capable of measuring viscosity for a wide range of asphalt binders (virgin or modified) under elevated temperature range as per ASTM D4402/AASHTO T316.
- ❖ The machine should be capable of measuring and displaying viscosity in different units. (cPs & mPas and cSt)
- ❖ The torque range of the viscometer should be from 0.1 to 1.4 mNm or above.
- ❖ The viscometer should be capable of measuring viscosity from at least 10 cP to above 190 million cP.
- ❖ The machine should be capable of setting rotational speed from 0.01 to 250 rpm. A resolution of 0.01 rpm is required in the speed range of 0.01 rpm to 1 rpm, and a resolution of 0.1 rpm is required in the speed range of 1 rpm to 250 rpm.
- ❖ An accuracy of 1.1% or better of the range is expected.
- ❖ PT100 sensor is needed.
- ❖ A point jewel type bearing is needed.
- ❖ Threaded type spindle coupling is required.
- ❖ The machine should have a touch screen display for setting different parameters and displaying various experimental results (e.g., viscosity, temperature, torque, speed, spindle, step program status, calculations, graphs, etc).
- ❖ The machine should be capable of doing data averaging using various data averaging methods.
- ❖ PC controlled programmable software will be better.
- ❖ Std. viscosity fluids should be provided for calibration.
- ❖ The thermosel system needed for the viscometer shall include different components such as an alignment bracket, thermos container with safety guard and insulating cap, temperature controller with an RTD probe, disposable sample chambers (5 nos.), and 1 removable sample chamber extracting tool. It should be capable of providing temperature control of sample up to +300°C. It should be with a programmable controller which offers single set point or up to 10 programmable set points. Temperature ramping between set points should be possible if used with software. Any necessary cables should be provided to connect with software.
- ❖ Appropriate spindle for asphalt binder viscosity measurement (e.g., spindle no. SC4-21, and spindle no. SC4-27)
- ❖ Software to get control of the instrument and different test parameters.

### Additional Terms and Conditions

- ❖ The bidder should be a registered OEM or must have valid authorization from a particular OEM.

- ❖ The bidder should have a valid ISO certificate – ISO 9001:2015, ISO 37001:2016 and ISO 45001 2018
- ❖ AFFIDAVIT ON RUPEES 100 STAMP PAPER stating that the bidder is not under liquidation & blacklisted by any State Govt. or Central Govt. Organization or any Govt. undertaking department or any PSU's
- ❖ Bidder must have dedicated service team for the after sales service. Bidder should have Escalation Matrix and all the details must be attached along with the bid documents.
- ❖ Min 10 years spare support on cost basis by bidder after warranty period.
- ❖ Bidder should supply instruments with NABL calibration certificates wherever applicable.

P.K. Ashish  
Regards, 11/8/23

Prabin Kumar Ashish, Ph.D.

Assistant Professor,

Department of Civil Engineering

Indian Institute of Technology Kanpur, India,

E-mail: [prabinashish@gmail.com](mailto:prabinashish@gmail.com), [pkashish@iitk.ac.in](mailto:pkashish@iitk.ac.in),

Web: <https://www.iitk.ac.in/new/prabin-kumar-ashish>